

Space Weather Forecast

Issued on Tuesday, 26 October 2021 at 13:08 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Daily slight chance of Moderate-class X-ray flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low through the period, with two common class flares observed, these both during the evening of 25th UTC from a region just around the eastern limb. There are currently five numbered sunspot regions on the visible disc. AR2886 in the southwest quadrant remains a simple and stable spot. AR2887 is the largest sunspot on the disc, which is located in the southeast quadrant. It remains magnetically complex, with continued changes to its intermediate spots. Despite its magnetic complexity, there has been very little activity from this region. AR2888, in the east quadrant, remains small and simple. AR2890, to the west of AR2886, has shown some growth with several small spots developing, though still relatively simple. Finally, AR2889 to the south of AR2888 has recently developed but remains very small. No Earth directed CME's have been observed in available imagery.

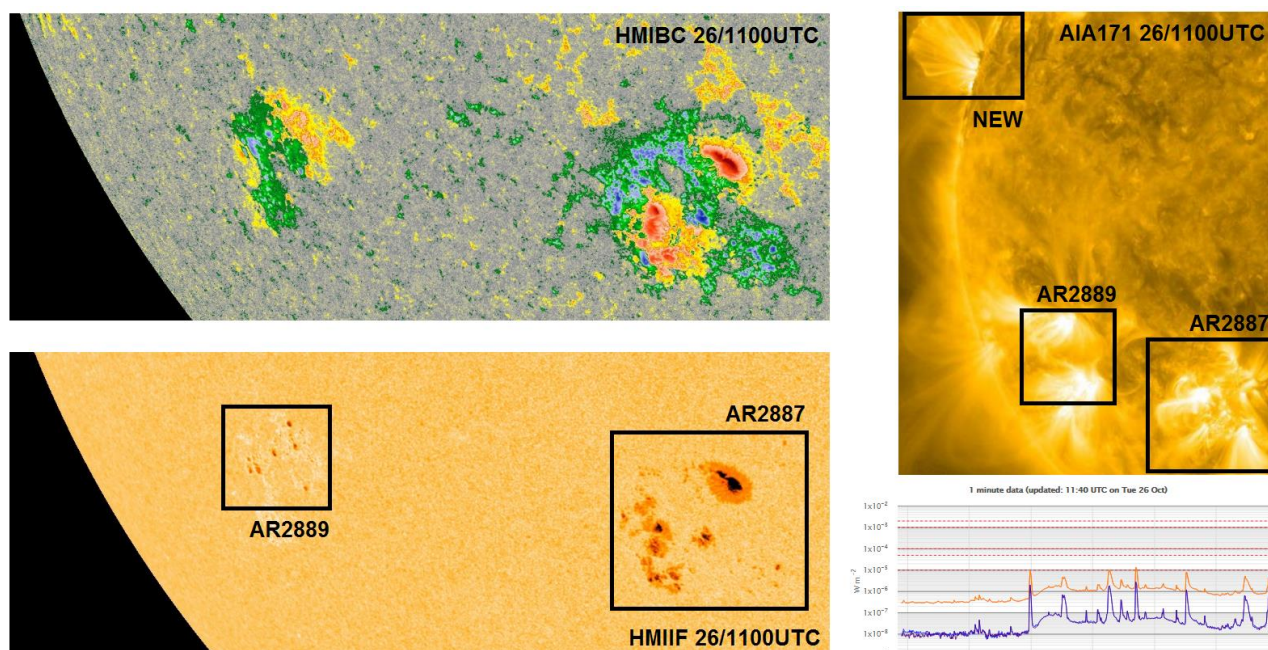


Figure 1: Clockwise from top left: magnetic image of two of up to six sunspot regions on the sun at present, including the most complex (rightmost); extreme UV image of the eastern solar hemisphere showing these aforementioned regions and a new one on the northeastern horizon; X-ray trace recorded at a near-Earth satellite showing a sharp rise and commencement of flares (M = Moderate); visible image of the southeast of the sun.

Solar Wind / Geomagnetic Activity: The solar wind was at background levels throughout. The interplanetary magnetic field was mostly weak and the important north-south component was subsequently weak. Resultant geomagnetic activity was Quiet (Kp 0-2) with one Unsettled interval (Kp 3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a daily Slight Chance of Moderate class X-ray flares, largely the result of the complexity of AR2887, although this has yet to be borne out in observed X-ray activity. There is a possible returning region just over the northeast limb that may yet increase probabilities over the next few days, however these do not yet feature in the percentages.

Solar Wind / Geomagnetic Activity: No Earth-directed coronal mass ejections feature in this forecast period. Coronal hole 15/+ is expected to become geoeffective early on Day 3 (28th). Due to its positive orientation and given it remains connected to the northern polar crown, a slight enhancement of solar wind speed is possible, perhaps bringing brief Unsettled or Active intervals on Day 3 in an otherwise Quiet geomagnetic period.

Energetic Particles / Solar Radiation: No solar radiation storms are currently expected.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)